

Cohen, Elizabeth (2003). "Weather-induced Erosion and Accretion at Seawall Beach, Phippsburg, Maine". Standard Theses.

An examination of Seawall Beach, a barrier beach in Phippsburg, Maine, and the collection of local weather data were used to determine patterns of erosion and accretion of sediment under summer and winter weather conditions. Methods included topographic profiling of the five transects perpendicular to the shoreline at different locations along the length of the beach, and digital photographs were taken to support the profile data. The NOAA Portland Weather buoy and a weather station installed at nearby Morse Mountain recorded weather conditions including wind speed, wind direction, wave height, and barometric pressure. The Portland CO-OPS station recorded tide levels. Storms were classified using the Dolan and Davis (1992) intensity scale for Atlantic Coast storms. The responses of the eastern, central, and western sectors of Seawall Beach were studied to determine spatial variability in erosion and accretion.

Results indicate a correlation between characteristically storm-like weather and wave conditions with increased erosion. The eastern sector of the beach was scraped during storms in November and January, but heavy erosion was limited due to the extensive presence of berm-colonizing plants on the backshore and possibly the presence of Morse hill to the east, which may have blocked erosive winds. In contrast, the same storms have caused a lot of scraping and removal of the berm on the western sector of the beach, which was more exposed to northeasterly winds. Storm tracks played an important role in the sediment transport that occurred during periods of increased wave height. Northeasterners were found to cause the greatest amount of erosion, while southwesterly storm caused upwelling and accretion through high-energy waves.